Full wwPDB EM Validation Report ⓘ

Feb 22, 2024 – 03:14 AM JST

PDB ID	:	8JX7
EMDB ID	:	EMD-36691
Title	:	Cryo-EM structure of human ABC transporter ABCC2
Authors	:	Mao, Y.X.; Chen, Z.P.; Wang, L.; Hou, W.T.; Chen, Y.X.; Zhou, C.Z.
Deposited on	:	2023-06-30
Resolution	:	3.60 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

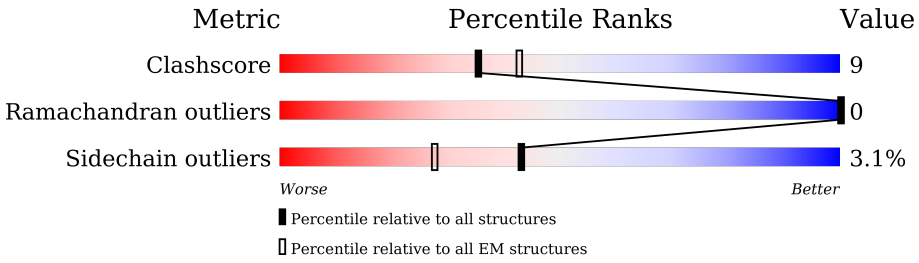
EMDB validation analysis	:	FAILED
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	FAILED
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.60 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5%

Mol	Chain	Length	Quality of chain
1	A	1565	71% 19% • 10%

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 11237 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called ATP-binding cassette sub-family C member 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1416	11237	7288	1858	2033	58	0	0

There are 20 discrepancies between the modelled and reference sequences:

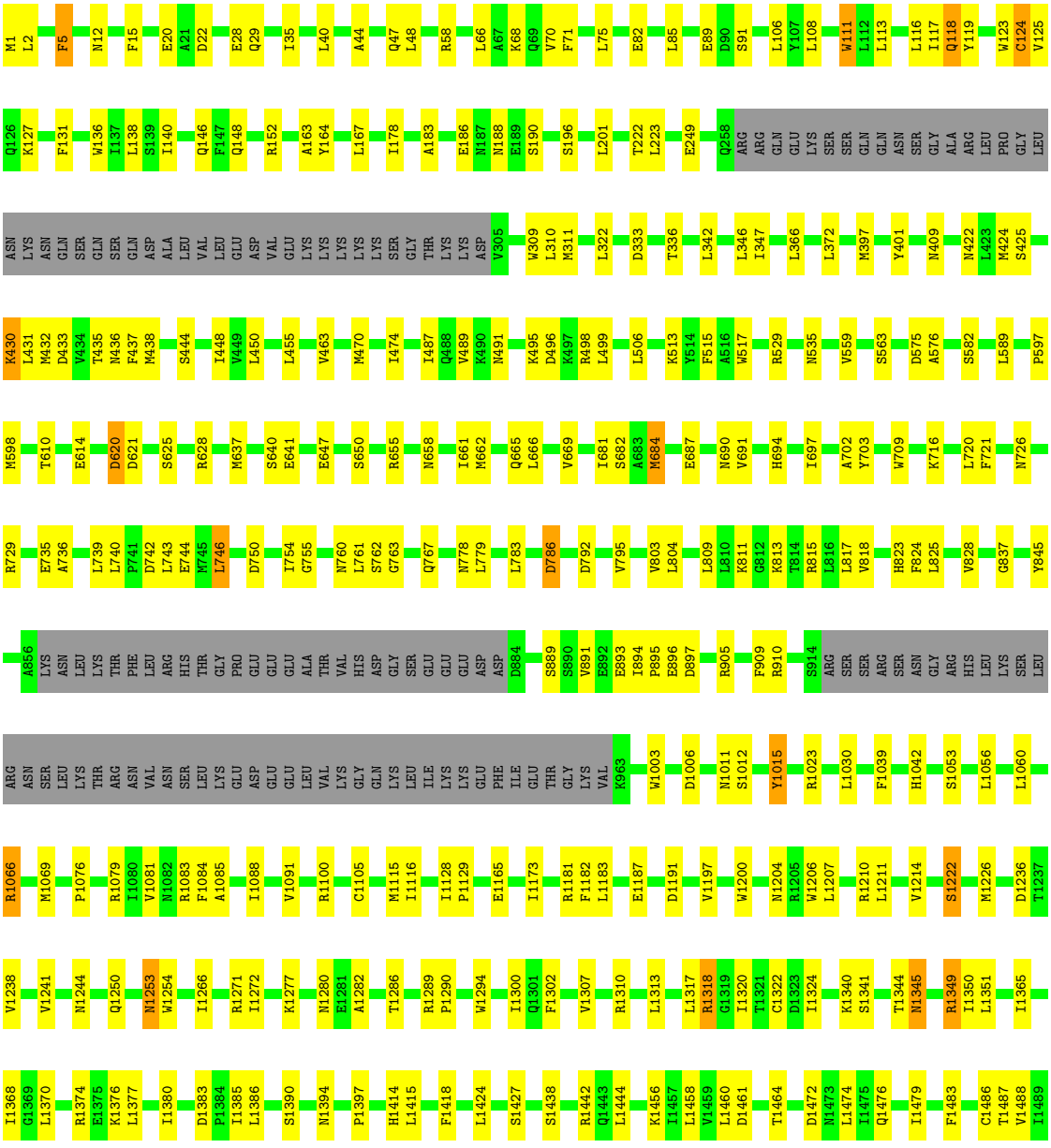
Chain	Residue	Modelled	Actual	Comment	Reference
A	1546	LEU	-	expression tag	UNP Q92887
A	1547	GLU	-	expression tag	UNP Q92887
A	1548	ASP	-	expression tag	UNP Q92887
A	1549	TYR	-	expression tag	UNP Q92887
A	1550	LYS	-	expression tag	UNP Q92887
A	1551	ASP	-	expression tag	UNP Q92887
A	1552	ASP	-	expression tag	UNP Q92887
A	1553	ASP	-	expression tag	UNP Q92887
A	1554	ASP	-	expression tag	UNP Q92887
A	1555	LYS	-	expression tag	UNP Q92887
A	1556	VAL	-	expression tag	UNP Q92887
A	1557	GLU	-	expression tag	UNP Q92887
A	1558	HIS	-	expression tag	UNP Q92887
A	1559	HIS	-	expression tag	UNP Q92887
A	1560	HIS	-	expression tag	UNP Q92887
A	1561	HIS	-	expression tag	UNP Q92887
A	1562	HIS	-	expression tag	UNP Q92887
A	1563	HIS	-	expression tag	UNP Q92887
A	1564	HIS	-	expression tag	UNP Q92887
A	1565	HIS	-	expression tag	UNP Q92887

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: ATP-binding cassette sub-family C member 2

Chain A:




T1490
I1491
L1495
I1498
K1503
V1504
M1505
V1506
L1507
K1511
I1512
I1537
GLU
ASN
VAL
ASN
SER
THR
LYS
PHE
LEU
GLU
ASP
TYR
LYS
ASP
ASP
ASP
LYS
VAL
GLU
HIS
HIS
HIS
HIS
HIS
HIS
HIS
HIS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	170268	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	55	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor

5 Model quality

5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.25	0/11474	0.48	0/15560

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	11237	0	11481	196	0
All	All	11237	0	11481	196	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 9.

All (196) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1464:THR:HG21	1:A:1476:GLN:HE22	1.41	0.83
1:A:409:ASN:HD22	1:A:687:GLU:HG2	1.50	0.76
1:A:1503:LYS:NZ	1:A:1505:MET:SD	2.60	0.74
1:A:431:LEU:O	1:A:435:THR:OG1	2.06	0.74
1:A:58:ARG:HE	1:A:123:TRP:HE1	1.37	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:409:ASN:ND2	1:A:687:GLU:O	2.23	0.68
1:A:684:MET:HB3	1:A:697:ILE:HD11	1.76	0.67
1:A:1472:ASP:O	1:A:1476:GLN:NE2	2.25	0.67
1:A:127:LYS:HG3	1:A:186:GLU:HB2	1.78	0.66
1:A:1349:ARG:NH2	1:A:1368:ILE:O	2.30	0.65
1:A:22:ASP:OD1	1:A:148:GLN:NE2	2.22	0.65
1:A:455:LEU:HB3	1:A:463:VAL:HG21	1.77	0.64
1:A:35:ILE:HG22	1:A:138:LEU:HD21	1.80	0.64
1:A:1302:PHE:HB2	1:A:1322:CYS:H	1.63	0.64
1:A:1320:ILE:HD12	1:A:1512:ILE:HG23	1.78	0.64
1:A:29:GLN:HE22	1:A:164:TYR:HE2	1.46	0.63
1:A:1472:ASP:OD1	1:A:1476:GLN:NE2	2.32	0.63
1:A:1307:VAL:H	1:A:1317:LEU:HB2	1.64	0.63
1:A:68:LYS:O	1:A:118:GLN:NE2	2.33	0.61
1:A:1115:MET:SD	1:A:1244:ASN:ND2	2.66	0.61
1:A:825:LEU:HD22	1:A:828:VAL:HG21	1.82	0.61
1:A:487:ILE:HG23	1:A:535:ASN:HD21	1.65	0.61
1:A:1310:ARG:HB3	1:A:1313:LEU:HG	1.82	0.61
1:A:702:ALA:HB2	1:A:779:LEU:HD12	1.84	0.60
1:A:709:TRP:NE1	1:A:1165:GLU:O	2.35	0.60
1:A:825:LEU:CD2	1:A:828:VAL:HG21	2.31	0.60
1:A:1300:ILE:HB	1:A:1324:ILE:HB	1.82	0.60
1:A:641:GLU:OE1	1:A:658:ASN:ND2	2.35	0.59
1:A:625:SER:O	1:A:628:ARG:NE	2.36	0.58
1:A:188:ASN:ND2	1:A:190:SER:OG	2.35	0.58
1:A:430:LYS:HD3	1:A:909:PHE:HE2	1.67	0.58
1:A:1318:ARG:HE	1:A:1511:LYS:HE2	1.68	0.58
1:A:409:ASN:ND2	1:A:687:GLU:HG2	2.19	0.57
1:A:1282:ALA:HB3	1:A:1370:LEU:HD11	1.87	0.57
1:A:1424:LEU:HB3	1:A:1427:SER:HB2	1.87	0.57
1:A:2:LEU:HB3	1:A:5:PHE:HB3	1.87	0.57
1:A:506:LEU:HD12	1:A:1081:VAL:HG23	1.86	0.57
1:A:1340:LYS:HG2	1:A:1491:ILE:HD12	1.88	0.56
1:A:1365:ILE:HA	1:A:1368:ILE:HD12	1.86	0.56
1:A:499:LEU:HD11	1:A:1085:ALA:HB3	1.88	0.55
1:A:1042:HIS:HD2	1:A:1100:ARG:HD3	1.70	0.55
1:A:681:ILE:H	1:A:681:ILE:HD12	1.72	0.55
1:A:666:LEU:HD13	1:A:815:ARG:HB2	1.89	0.54
1:A:1479:ILE:HA	1:A:1483:PHE:HD1	1.71	0.54
1:A:669:VAL:HB	1:A:818:VAL:HG12	1.88	0.54
1:A:1460:LEU:HD12	1:A:1461:ASP:H	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:529:ARG:NH2	1:A:1053:SER:OG	2.42	0.53
1:A:655:ARG:HH11	1:A:837:GLY:HA3	1.73	0.53
1:A:702:ALA:O	1:A:783:LEU:N	2.35	0.53
1:A:89:GLU:OE2	1:A:91:SER:OG	2.25	0.53
1:A:48:LEU:HD21	1:A:116:LEU:HD21	1.89	0.53
1:A:432:MET:O	1:A:436:ASN:N	2.42	0.53
1:A:136:TRP:O	1:A:140:ILE:HG12	2.08	0.53
1:A:12:ASN:HB3	1:A:15:PHE:HD2	1.74	0.52
1:A:1083:ARG:NE	1:A:1271:ARG:HB3	2.25	0.52
1:A:28:GLU:OE1	1:A:146:GLN:HB2	2.10	0.52
1:A:1060:LEU:HG	1:A:1272:ILE:HG23	1.91	0.51
1:A:1076:PRO:HG2	1:A:1079:ARG:HB2	1.91	0.51
1:A:491:ASN:ND2	1:A:535:ASN:OD1	2.43	0.51
1:A:895:PRO:HD2	1:A:1250:GLN:HE21	1.76	0.51
1:A:1286:THR:O	1:A:1289:ARG:NH1	2.40	0.51
1:A:620:ASP:N	1:A:620:ASP:OD1	2.35	0.51
1:A:736:ALA:HB1	1:A:803:VAL:HG22	1.92	0.50
1:A:422:ASN:HA	1:A:425:SER:OG	2.11	0.50
1:A:739:LEU:HB3	1:A:743:LEU:HD23	1.93	0.50
1:A:474:ILE:HD12	1:A:597:PRO:HG3	1.93	0.50
1:A:662:MET:HB2	1:A:665:GLN:HE22	1.75	0.50
1:A:342:LEU:HD21	1:A:366:LEU:HB3	1.94	0.50
1:A:1069:MET:O	1:A:1069:MET:HE3	2.12	0.50
1:A:1318:ARG:O	1:A:1511:LYS:NZ	2.42	0.50
1:A:1386:LEU:HD11	1:A:1442:ARG:HG2	1.93	0.49
1:A:1105:CYS:SG	1:A:1254:TRP:NE1	2.83	0.49
1:A:68:LYS:HG3	1:A:118:GLN:HE21	1.77	0.49
1:A:809:LEU:HD23	1:A:809:LEU:H	1.78	0.49
1:A:444:SER:O	1:A:448:ILE:HG23	2.13	0.49
1:A:222:THR:HG22	1:A:223:LEU:H	1.78	0.49
1:A:1197:VAL:HA	1:A:1200:TRP:CZ3	2.48	0.49
1:A:1383:ASP:HB2	1:A:1385:ILE:HD11	1.95	0.49
1:A:127:LYS:HZ1	1:A:188:ASN:HB3	1.77	0.48
1:A:1076:PRO:HD2	1:A:1079:ARG:HE	1.78	0.48
1:A:1456:LYS:HD2	1:A:1486:CYS:HA	1.94	0.48
1:A:430:LYS:HD3	1:A:909:PHE:CE2	2.48	0.48
1:A:436:ASN:ND2	1:A:889:SER:O	2.47	0.48
1:A:666:LEU:HB2	1:A:815:ARG:NH1	2.29	0.47
1:A:804:LEU:HD23	1:A:804:LEU:H	1.78	0.47
1:A:897:ASP:HB3	1:A:1254:TRP:CH2	2.49	0.47
1:A:778:ASN:OD1	1:A:813:LYS:NZ	2.46	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:894:ILE:HB	1:A:1254:TRP:HE3	1.79	0.47
1:A:496:ASP:HA	1:A:499:LEU:HD23	1.97	0.47
1:A:1460:LEU:HD12	1:A:1461:ASP:N	2.29	0.47
1:A:346:LEU:CD2	1:A:1238:VAL:HG11	2.45	0.47
1:A:716:LYS:HG2	1:A:720:LEU:HD11	1.96	0.47
1:A:559:VAL:O	1:A:563:SER:OG	2.20	0.47
1:A:742:ASP:O	1:A:746:LEU:HD12	2.14	0.47
1:A:1211:LEU:HD12	1:A:1253:ASN:HA	1.96	0.47
1:A:124:CYS:SG	1:A:125:VAL:N	2.88	0.47
1:A:1236:ASP:OD1	1:A:1236:ASP:N	2.48	0.47
1:A:309:TRP:NE1	1:A:614:GLU:HG3	2.30	0.46
1:A:721:PHE:O	1:A:1181:ARG:NH1	2.33	0.46
1:A:894:ILE:HB	1:A:1254:TRP:CE3	2.50	0.46
1:A:1456:LYS:O	1:A:1487:THR:N	2.48	0.46
1:A:896:GLU:HB2	1:A:1250:GLN:HE22	1.81	0.46
1:A:495:LYS:HE2	1:A:498:ARG:HH22	1.81	0.46
1:A:111:TRP:HA	1:A:111:TRP:CE3	2.49	0.46
1:A:455:LEU:HD21	1:A:582:SER:HA	1.98	0.46
1:A:1370:LEU:O	1:A:1374:ARG:N	2.37	0.46
1:A:433:ASP:OD2	1:A:905:ARG:NE	2.49	0.46
1:A:435:THR:HA	1:A:438:MET:SD	2.56	0.46
1:A:647:GLU:HG2	1:A:650:SER:HB2	1.96	0.46
1:A:681:ILE:HD11	1:A:818:VAL:HG21	1.98	0.46
1:A:40:LEU:O	1:A:44:ALA:N	2.48	0.45
1:A:1222:SER:O	1:A:1226:MET:HG2	2.16	0.45
1:A:397:MET:HG2	1:A:424:MET:HB2	1.98	0.45
1:A:1386:LEU:HB3	1:A:1394:ASN:HD21	1.80	0.45
1:A:111:TRP:HA	1:A:111:TRP:HE3	1.82	0.45
1:A:1460:LEU:HB3	1:A:1490:THR:HA	1.99	0.45
1:A:637:MET:HB2	1:A:661:ILE:HB	1.98	0.45
1:A:682:SER:HB3	1:A:687:GLU:OE1	2.17	0.45
1:A:310:LEU:HD23	1:A:610:THR:HG23	1.98	0.45
1:A:1183:LEU:O	1:A:1187:GLU:HG2	2.17	0.45
1:A:735:GLU:HA	1:A:740:LEU:HD21	2.00	0.44
1:A:1290:PRO:HD3	1:A:1368:ILE:HG23	1.99	0.44
1:A:665:GLN:N	1:A:665:GLN:OE1	2.50	0.44
1:A:113:LEU:O	1:A:117:ILE:HG22	2.18	0.44
1:A:1023:ARG:HA	1:A:1023:ARG:HD3	1.72	0.44
1:A:889:SER:OG	1:A:893:GLU:OE2	2.27	0.44
1:A:641:GLU:OE2	1:A:641:GLU:HA	2.18	0.44
1:A:1495:LEU:HG	1:A:1498:ILE:HD11	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:744:GLU:N	1:A:744:GLU:OE2	2.51	0.43
1:A:1206:TRP:O	1:A:1210:ARG:HG2	2.18	0.43
1:A:1380:ILE:HD12	1:A:1380:ILE:N	2.33	0.43
1:A:740:LEU:HD22	1:A:740:LEU:H	1.83	0.43
1:A:1083:ARG:HE	1:A:1271:ARG:HB3	1.83	0.43
1:A:1006:ASP:OD2	1:A:1015:TYR:OH	2.27	0.43
1:A:1207:LEU:HD23	1:A:1207:LEU:HA	1.85	0.43
1:A:517:TRP:CG	1:A:1397:PRO:HG3	2.53	0.43
1:A:1370:LEU:HD12	1:A:1370:LEU:H	1.83	0.43
1:A:75:LEU:HD23	1:A:111:TRP:CZ2	2.53	0.43
1:A:1011:ASN:OD1	1:A:1012:SER:N	2.51	0.43
1:A:1294:TRP:CE3	1:A:1376:LYS:HD3	2.53	0.43
1:A:823:HIS:C	1:A:824:PHE:HD2	2.22	0.42
1:A:82:GLU:HB2	1:A:167:LEU:HD12	2.00	0.42
1:A:346:LEU:HD21	1:A:1238:VAL:HG11	2.01	0.42
1:A:1345:ASN:HB3	1:A:1350:ILE:HB	2.01	0.42
1:A:249:GLU:OE2	1:A:309:TRP:HB2	2.19	0.42
1:A:817:LEU:HD23	1:A:818:VAL:N	2.34	0.42
1:A:47:GLN:HG3	1:A:131:PHE:CG	2.55	0.42
1:A:450:LEU:HD12	1:A:450:LEU:HA	1.86	0.42
1:A:1003:TRP:CD1	1:A:1023:ARG:HG3	2.55	0.42
1:A:66:LEU:O	1:A:70:VAL:HG12	2.20	0.42
1:A:470:MET:HE1	1:A:589:LEU:HG	2.01	0.42
1:A:1066:ARG:HB3	1:A:1280:ASN:OD1	2.20	0.42
1:A:1458:LEU:HD22	1:A:1488:VAL:HG13	2.00	0.42
1:A:178:ILE:HD13	1:A:178:ILE:HA	1.88	0.41
1:A:489:VAL:HB	1:A:910:ARG:HH21	1.85	0.41
1:A:762:SER:OG	1:A:763:GLY:N	2.53	0.41
1:A:1206:TRP:HE1	1:A:1210:ARG:NH2	2.18	0.41
1:A:1345:ASN:OD1	1:A:1345:ASN:N	2.53	0.41
1:A:322:LEU:HD23	1:A:322:LEU:HA	1.80	0.41
1:A:347:ILE:HD13	1:A:347:ILE:HA	1.91	0.41
1:A:726:ASN:HB3	1:A:729:ARG:HB2	2.02	0.41
1:A:1302:PHE:HB2	1:A:1322:CYS:N	2.33	0.41
1:A:1350:ILE:HD13	1:A:1374:ARG:NH2	2.35	0.41
1:A:333:ASP:O	1:A:336:THR:HG22	2.21	0.41
1:A:1088:ILE:O	1:A:1091:VAL:HG12	2.20	0.41
1:A:1317:LEU:HD23	1:A:1317:LEU:HA	1.84	0.41
1:A:515:PHE:N	1:A:515:PHE:CD2	2.88	0.41
1:A:760:ASN:C	1:A:761:LEU:HD23	2.41	0.41
1:A:1414:HIS:ND1	1:A:1474:LEU:HD21	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:792:ASP:HB3	1:A:795:VAL:HB	2.02	0.41
1:A:1173:ILE:HD12	1:A:1182:PHE:CE1	2.55	0.41
1:A:1341:SER:O	1:A:1344:THR:OG1	2.34	0.41
1:A:1210:ARG:O	1:A:1214:VAL:HG23	2.20	0.41
1:A:455:LEU:HA	1:A:455:LEU:HD23	1.69	0.41
1:A:767:GLN:NE2	1:A:786:ASP:O	2.51	0.41
1:A:1056:LEU:HD12	1:A:1056:LEU:HA	1.88	0.41
1:A:1128:ILE:HB	1:A:1129:PRO:HD3	2.03	0.41
1:A:1390:SER:O	1:A:1394:ASN:HB2	2.20	0.41
1:A:666:LEU:HB2	1:A:815:ARG:HH11	1.86	0.41
1:A:1030:LEU:HD23	1:A:1030:LEU:HA	1.93	0.41
1:A:598:MET:SD	1:A:891:VAL:HG21	2.61	0.40
1:A:85:LEU:HD21	1:A:163:ALA:HB1	2.02	0.40
1:A:690:ASN:OD1	1:A:691:VAL:N	2.54	0.40
1:A:1438:SER:O	1:A:1442:ARG:HG3	2.21	0.40
1:A:754:ILE:HD12	1:A:755:GLY:H	1.87	0.40
1:A:897:ASP:HB3	1:A:1254:TRP:HH2	1.85	0.40
1:A:1116:ILE:HA	1:A:1241:VAL:HG13	2.03	0.40
1:A:1345:ASN:HB3	1:A:1351:LEU:HG	2.02	0.40
1:A:20:GLU:OE2	1:A:20:GLU:N	2.55	0.40
1:A:183:ALA:HB2	1:A:201:LEU:HD12	2.03	0.40
1:A:575:ASP:OD1	1:A:576:ALA:N	2.54	0.40
1:A:640:SER:HB2	1:A:694:HIS:HB3	2.02	0.40
1:A:372:LEU:HD23	1:A:372:LEU:HA	1.83	0.40
1:A:811:LYS:HA	1:A:811:LYS:HD2	1.77	0.40
1:A:1266:ILE:HD12	1:A:1266:ILE:HA	1.92	0.40
1:A:1415:LEU:HD11	1:A:1444:LEU:HB3	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	1408/1565 (90%)	1375 (98%)	33 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	1254/1392 (90%)	1215 (97%)	39 (3%)	40	71

All (39) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1	MET
1	A	5	PHE
1	A	71	PHE
1	A	106	LEU
1	A	108	LEU
1	A	111	TRP
1	A	118	GLN
1	A	119	TYR
1	A	124	CYS
1	A	152	ARG
1	A	196	SER
1	A	311	MET
1	A	401	TYR
1	A	430	LYS
1	A	437	PHE
1	A	513	LYS
1	A	620	ASP
1	A	621	ASP
1	A	684	MET
1	A	703	TYR
1	A	746	LEU
1	A	750	ASP
1	A	786	ASP

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Mol	Chain	Res	Type
1	A	845	TYR
1	A	1015	TYR
1	A	1039	PHE
1	A	1066	ARG
1	A	1084	PHE
1	A	1191	ASP
1	A	1204	ASN
1	A	1222	SER
1	A	1253	ASN
1	A	1277	LYS
1	A	1318	ARG
1	A	1345	ASN
1	A	1349	ARG
1	A	1377	LEU
1	A	1418	PHE
1	A	1507	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	118	GLN
1	A	491	ASN
1	A	535	ASN
1	A	1250	GLN
1	A	1476	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains (i)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.